IN THE CLAIMS

Please amend the claims as follows:

Claims 1-143 (Canceled)

144. (New) A semiconductor structure comprising:

a monocrystalline silicon substrate;

an amorphous oxide material overlying the monocrystalline silicon substrate;

a monocrystalline perovskite oxide material overlying the amorphous oxide material; and

a monocrystalline compound semiconductor material overlying the monocrystalline perovskite oxide material.

145. (New) The semiconductor structure of claim 144 wherein the monocrystalline silicon substrate is orientated in the (100) direction.

146. (New) The semiconductor structure of claim 144 further comprising a template layer formed between the monocrystalline perovskite oxide material and the monocrystalline compound semiconductor material.

147. (New) The semiconductor structure of claim 144 further comprising a buffer material of monocrystalline semiconductor material formed between the monocrystalline perovskite oxide material and the monocrystalline compound semiconductor material.

148. (New) The semiconductor structure of claim 147 further comprising a template layer formed between the monocrystalline perovskite oxide material and the buffer material.

149. (New) The semiconductor structure of claim 147 wherein the buffer material is selected from the group consisting of: Germanium, a $GaAs_xP_{1-x}$, superlattice where x ranges from 0 to 1, an $In_yGa_{1-y}P$ superlattice where y ranges from 0 to 1, and an InGaAs superlattice.

150. (New) The semiconductor structure of claim 144 wherein the monocrystalline perovskite oxide material is selected from the group consisting of: alkaline earth metal titanates, alkaline earth metal zirconates, alkaline earth metal hafnates, alkaline earth metal tantalates, alkaline earth metal ruthenates, alkaline earth metal niobates, alkaline earth metal vanadates, alkaline earth metal tin based perovskites, lanthanum aluminate, and lanthanum scandium oxide.

151. (New) The semiconductor structure of claim 144 wherein the monocrystalline perovskite oxide material comprises $Sr_zBa_{1-z}TiO_3$ wherein z ranges from 0 to 1.

152. (New) The semiconductor structure of claim 144 wherein the monocrystalline compound semiconductor material is selected from the group consisting of: III-V compounds, mixed III-V compounds, II-VI compounds, and mixed II-VI compounds.

153. (New) The semiconductor structure of claim 144 wherein the monocrystalline compound semiconductor material is selected from the group consisting of: GaAs, AlGaAs, InP, InGaAs, InGaP, ZnSe, AlInAs, CdS, CdHgTe, and ZnSeS.

154. (New) A semiconductor structure comprising:

a monocrystalline substrate characterized by a first lattice constant;

a monocrystalline insulator layer having a second lattice constant different than the first lattice constant overlying the monocrystalline substrate;

an amorphous oxide layer between the monocrystalline substrate and the monocrystalline insulator layer; and

a monocrystalline compound semiconductor layer having a third lattice constant different than the first lattice constant overlying the monocrystalline insulator layer; wherein the second lattice constant is selected to be one of:

equal to the third lattice constant; and intermediate the first and third lattice constant.

155. (New) The semiconductor structure of claim 154 wherein the monocrystalline substrate is orientated in the (100) direction.

156. (New) The semiconductor structure of claim 154 wherein the amorphous oxide layer has a thickness sufficient to relieve strain in the monocrystalline insulator layer.

157. (New) The semiconductor structure of claim 154 further comprising a template layer between the monocrystalline insulator layer and the monocrystalline compound semiconductor layer.

158. (New) The semiconductor structure of claim 154 further comprising a buffer layer between the monocrystalline insulator layer and the monocrystalline compound semiconductor layer.

159. (New) The semiconductor structure of claim 154 wherein the monocrystalline substrate is characterized by a first crystalline orientation and the monocrystalline insulator layer is characterized by a second crystalline orientation and wherein the second crystalline orientation is rotated with respect to the first crystalline orientation.

160. (New) The semiconductor structure of claim 154 wherein the monocrystalline substrate comprises silicon.

161. (New) The semiconductor structure of claim 154 wherein the monocrystalline substrate comprises a material comprising silicon, the monocrystalline insulator comprises an alkaline earth metal titanate and the monocrystalline compound semiconductor material comprises a material selected from the group consisting of: GaAs, AlGaAs, ZnSe, and ZnSeS.

162. (New) The semiconductor structure of claim 161 wherein the monocrystalline insulator layer comprises $Sr_zBa_{1-z}TiO_3$, where z ranges from 0 to 1.

163. (New) The semiconductor structure of claim 154 wherein the monocrystalline insulator layer comprises an oxide selected from the group consisting of alkaline earth metal zirconates, and alkaline earth metal hafnates and the monocrystalline compound semiconductor layer comprises a material selected from the group consisting of: InP and InGaP.